

## Two New Species of *Tremex* Jurine (Hymenoptera: Siricidae) from Japan

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Two new species of woodwasps, *Tremex okinawensis* sp. nov. and *T. kaedei* sp. nov., from Japan are described and illustrated, and a key is provided for the Japanese species of *Tremex*.

**Key Words:** *Tremex*, Siricidae, Symphyta, Japan, food plant, *Acer* sp.

I recently received 7 specimens (2 females and 5 males) of siricid woodwasps from Professor S. Azuma, University of the Ryukyus, Okinawa Prefecture, and Mr. A. Abe, Hirosaki City, Aomori Prefecture, Japan. These specimens belong to the *fuscicornis*-group (pronotum short with midlength shorter than OCL) of the genus *Tremex* Jurine. As a result of comparative studies of the *fuscicornis*-group, I concluded that these specimens represent two new species, which are described and illustrated in this paper.

### Key to the Japanese species of *Tremex*

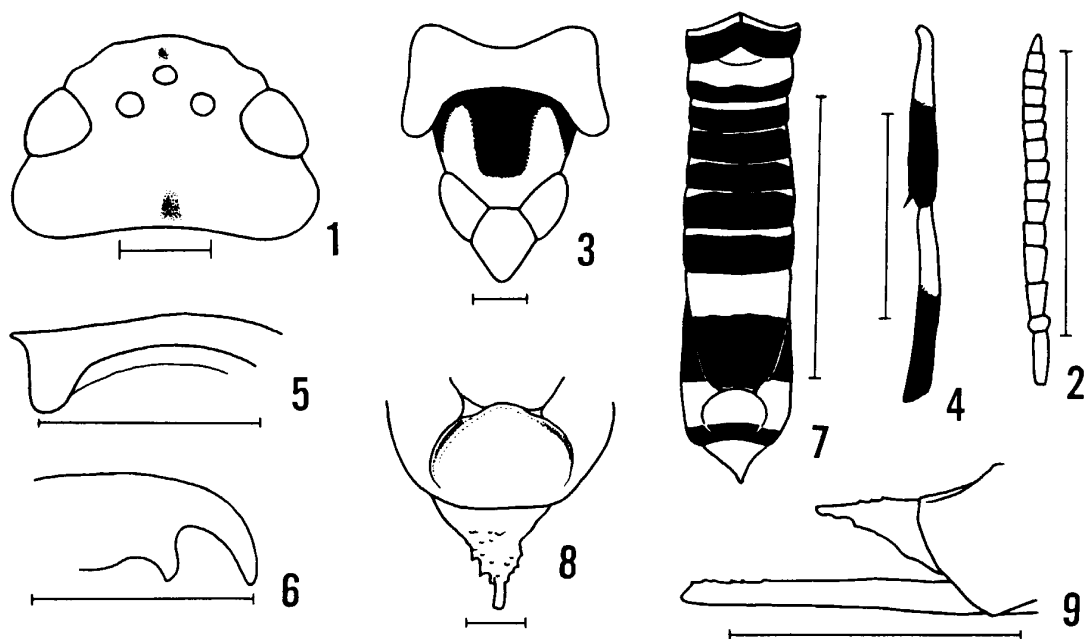
1. Basal half of antenna black and apical half white ..... *apicalis* Matsumura
- . Antenna fulvous or brownish black ..... 2
2. Pronotum long, its midlength nearly as long as OCL (ratio about 1.0:1.0) ... 3
- . Pronotum short, its midlength shorter than OCL (ratio about 1.0:1.3-1.6) ... 4
3. Antenna brownish black; 8th tergite nearly as long as three preceding tergites combined; precornal basin nearly as long as broad  
..... *longicornis* Konow
- . Antenna fulvous; 8th tergite nearly as long as four preceding tergites combined; precornal basin broader than long ..... *contractus* Maa
4. Anterior half of 8th tergite reddish yellow and posterior half black (Fig. 7); basal 3/4 of 2nd tergite reddish yellow but 1/4 black (Fig. 7); basal 1/3 of hind basitarsus pale milky white, posterior 2/3 pale reddish yellow (Fig. 4); precornal basin slightly broader than long (ratio about 1.3:1.0) (Fig. 8)  
..... *okinawensis* sp. nov.
- . Eighth tergite with black band in middle (sometimes posterior half with two reddish yellow maculae or posterior half black) (Fig. 16); 2nd tergite reddish yellow (Fig. 16); hind basitarsus pale yellowish white (Fig. 13); precornal basin broader than long (ratio about 1.8:1.0) (Fig. 17) ..... 5
5. Eighth tergite shorter than three preceding tergites combined (ratio about 1.0:1.2) (Fig. 16); mesoscutum black (Fig. 12); 1st tergite entirely black (Fig. 16) ..... *kaedei* sp. nov.

- Eighth tergite nearly as long as three preceding tergites combined; mesoscutum black with reddish brown macula; lateral sides of 1st tergite with reddish yellow maculae ..... 6
- 6. Mesoscutellum black; middle segments of antenna longer than broad; sheath shorter than basal plate (ratio about 1.0:1.3) ..... *fuscicornis* (Fabricius)
- Mesoscutellum reddish brown; middle segments of antenna slightly broader than long or nearly as long as broad; sheath much shorter than basal plate (ratio about 1.0:2.7) ..... *nakanei* Takeuchi

***Tremex okinawensis* sp. nov.**

(Figs 1-9)

**Female.** Length 24mm, including cornus. Head reddish yellow with following parts black: malar space, anterior margin of clypeus, and mandible. Antenna reddish yellow. Thorax reddish yellow with following parts black: central portion and lateral sides of scutum (Fig. 3), metascutellum, metapostnotum, most of mesopleuron, and mesosternum. Wings yellowish hyaline; Cell *bm*, 1*r*, and basal 1/3 of 2*r* of forewing infuscate; basal portion of anal cell of forewing infuscate; stigma and veins mostly fulvous. Legs reddish yellow but hind coxa, trochanters, and femora black; basal 1/3 of all tibiae and hind basitarsus yellowish white (Fig. 4). Abdomen black with following parts yellow to reddish yellow (Fig. 7): front margin of 1st tergite, basal



Figs 1-9. *Tremex okinawensis* sp. nov. — 1, head, dorsal view; 2, antenna, dorsal view; 3, thorax except for metapostnotum, dorsal view; 5, inner tibial spur of fore leg, lateral view; 6, tarsal claw, lateral view; 7, abdomen, dorsal view; 8, precornal basin and cornus, dorsal view; 9, cornus and sheath, lateral view. Scale for 1, 3 and 8: 1mm; scale for 2, 4 and 9: 5mm; scale for 5 and 6: 0.5mm; scale for 7: 10mm.

2/3 of 2nd tergite, basal 1/4 of 3rd tergite, basal margins of 4th to 6th tergites except for interruption in middle of each, basal 1/4 of 7th tergite, basal half of 8th tergite, apical half of 9th tergite except for posterior margin, cornus, all sternites except for lateral sides of 4th to 8th; and sheath reddish brown.

Head from above triangular (Fig. 1); vertex with longitudinal depression; OOL:POL:OCL=0.6:1.0:2.7; area just in front of anterior ocellus with short, shallow depression.

Antenna 15-segmented (Fig. 2), more than half as long as costa of forewing (ratio about 1.0:1.5); 3rd antennal segment slightly shorter than 4th (ratio about 1.0:1.2); relative lengths of basal five segments about 3.0:1.0:1.7:2.1:1.5.

Thorax: pronotum short, its midlength shorter than OCL (ratio about 1.0:1.5). Legs: hind tibia nearly as long as hind basitarsus (Fig. 4); inner tibial spur of fore leg as in Fig. 5; tarsal claw as in Fig. 6.

Abdomen: 8th tergite nearly as long as three preceding tergites combined (ratio about 1.0:1.0); precornal basin broader than long (ratio between breadth and length about 1.3:1.0) (Fig. 8); cornus as in Figs. 8 and 9; sheath much more than half as long as basal plate (ratio about 1.0:1.2).

Punctuation. Head and thorax except for mesopleuron and mesosternum distinctly, closely, and reticulately punctate; mesopleuron and mesosternum distinctly and evenly punctate, interspaces between punctae shiny. Abdominal tergites shagreened.

**Male.** Unknown.

**Food plant.** Unknown.

**Distribution.** Japan (Okinawa).

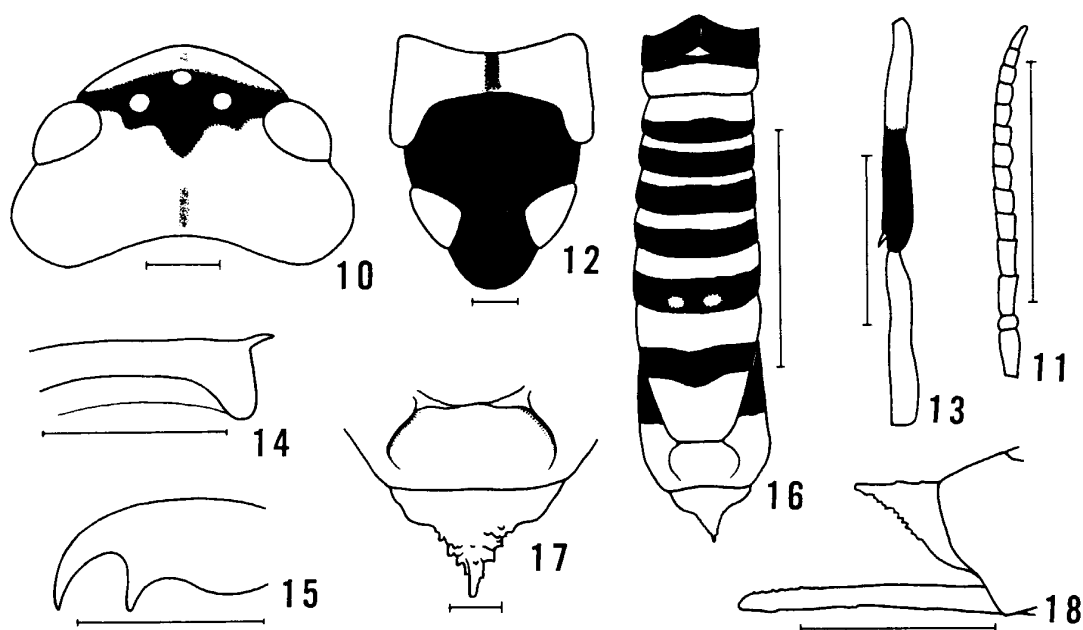
**Holotype.** Female, Benoki, Kunigami-son, Okinawa Island, 3. V. 1971, K. Miyagi leg., deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo.

**Etymology.** Named for Okinawa, the type locality.

**Remarks.** This new species runs to *T. guangchenii* Xiao et Wu in Xiao and Wu's (1983) key, but *T. okinawensis* is distinguished from *T. guangchenii* by the coloration of the 8th tergite, antenna, and sheath (in *T. guangchenii*, the front margin of the 8th tergite and the 3rd to 10th antennal segments are black, and the sheath is brownish black), the form of the precornal basin (in *T. guangchenii*, the precornal basin is transverse, with a ratio between breadth and length of about 1.5:1.0), and differences in the ratio between OOL, POL, and OCL.

***Tremex kaedei* sp. nov.**  
(Figs 10-20)

**Female.** Length 30mm, including cornus. Head reddish yellow with following parts dark brown to black: vertex (Fig. 10) and apical half of mandible. Antenna reddish yellow. Thorax reddish yellow with following parts dark brown to black: longitudinal line at center of pronotum (Fig. 12), scutum, mesoscutellum, metascutellum, mesopleuron, and mesosternum. Wings yellowish hyaline; apical portion of Cell *bm*, 1*r*, and 2*r* of forewing infuscate. Legs: all coxae and all femora except for basal portions and knees black; all trochanters, as well as basal portions and knees of all femora, reddish brown; basal halves of all tibiae pale yellow and apical halves pale reddish yellow; fore and mid tarsi pale reddish yellow; hind tarsus



Figs 10-18. *Tremex kaedei* sp. nov. — 10, head, dorsal view; 11, antenna, dorsal view; 12, thorax except for metapostnotum, dorsal view; 13, hind tibia and basitarsus, lateral view; 14, inner tibial spur of fore leg, lateral view; 15, tarsal claw, lateral view; 16, abdomen, dorsal view; 17, precornal basin and cornus, dorsal view; 18, cornus and sheath, lateral view. Scale for 11, 13 and 18: 5mm; scale for 14 and 15: 0.5mm; scale for 16: 10mm.

whitish yellow. Abdomen black with following parts yellow to reddish yellow: posterior 2/3 of 2nd tergite, anterior half of 3rd tergite, anterior half of 6th and 7th tergites, anterior 1/3 and posterior 1/3 of 8th tergite, posterior half of 9th tergite, precornal basin, and cornus; sheath dark reddish brown.

Head from above triangular (Fig. 10); vertex with longitudinal depression; OOL:POL:OCL=0.5:1.0:2.3; area just in front of anterior ocellus with short, shallow depression.

Antenna 14-segmented (Fig. 11), more than half as long as costa of forewing (ratio about 1.0:1.5); 3rd antennal segment nearly as long as 4th; relative lengths of basal five segments about 3.8:1.0:3.0:2.8:2.1.

Thorax: pronotum short, its midlength shorter than OCL (ratio about 1.0:2.0). Legs: hind tibia longer than hind basitarsus (ratio about 1.0:0.7) (Fig. 13); inner tibial spur of fore leg as in Fig. 14; tarsal claw as in Fig. 15.

Abdomen: 8th tergite shorter than three preceding tergites combined (ratio about 1.0:1.2); precornal basin much broader than long (ratio between breadth and length about 1.8:1.0); cornus as in Figs 17 and 18; sheath more than half as long as basal plate (ratio about 1.0:1.6).

Punctuation. Head distinctly and rather closely punctate; thorax except for pronotum distinctly, closely, and reticulately punctate, but mesopleuron and mesosternum distinctly and rather evenly punctate, interspaces between punctae shiny. Pronotum granulated. Abdominal tergites shagreened.

**Male.** Length 19mm. Body black with following parts reddish yellow to reddish

brown: cheek, supraclypeal area, tegula, apical portion of lateral lobes of mesoscutellum; 4th to 8th tergites except for interruption in middle of 4th and 5th tergites; posterior half of 4th to 8th sternites, and central portion of subgenital plate. Male genitalia rather dark reddish brown.

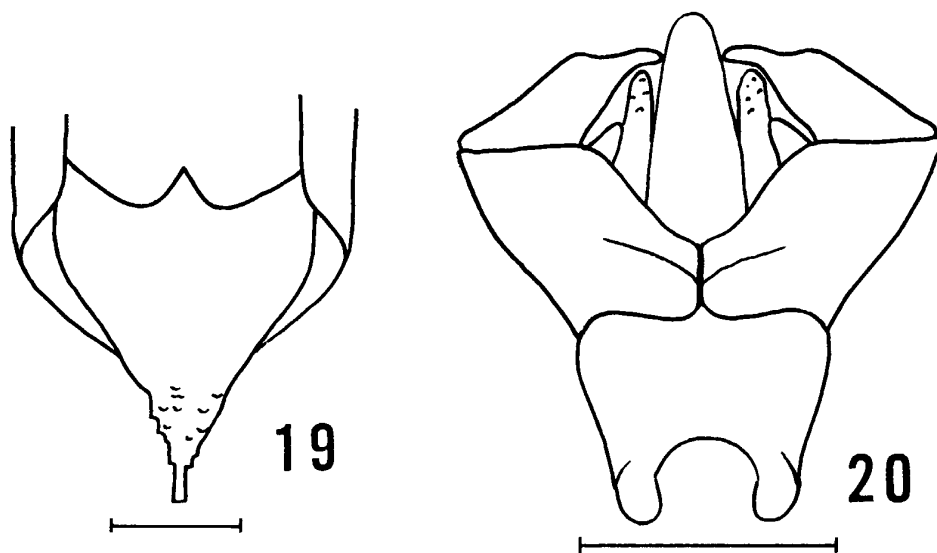
Antenna black but apical portion of scape and pedicel dark reddish brown.

Wings hyaline, apical 2/3 of forewing infusate.

Legs: all coxae, trochanters, and femora, as well as hind tibia and tarsus, dark reddish brown to black; fore and mid tibiae and tarsi reddish brown.

Subgenital plate and posterior margin of 8th sternite as in Fig. 19; male genitalia as in Fig. 20.

**Food plant.** *Acer* sp. (Japanese name: kaede).



Figs 19 and 20. *Tremex kaedei* sp. nov. — 19, 8th sternite and subgenital plate, ventral view; 20, genitalia, ventral view. Scale for 19 and 20: 1mm.

**Distribution.** Japan (Honshu).

**Type series.** Holotype: female, Hirosaki City, Aomori Pref., 11. IV. 1976, bred from *Acer* sp. (S. Satoh leg.), deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo. Paratypes: 4 males, same data as for holotype; 1 male, Oirase, Fukaura-machi, Nishitsugaru-gun, Aomori Pref., 21. VI. 1973, Abe leg. One paratype deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo, one paratype preserved in the National Museum of Natural History, Washington, D.C., and the other 3 paratypes in my collection.

**Etymology:** Genitive form derived treating the food plant's Japanese name as a masculine Latin noun.

**Remarks.** This new species runs to *T. fuscicornis* (Fabricius) in Takeuchi's (1955) key, but *T. kaedei* is distinguished from *T. fuscicornis* by the length of the 8th tergite (in *T. fuscicornis*, the 8th tergite is nearly as long as the three preceding tergites combined, ratio about 1.0:1.0), by the length of the 3rd antennal segment (in *T. fuscicornis*, the 3rd antennal segment is shorter than the 4th, ratio about 1.0:1.2),

and by the length of the sheath (in *T. fuscicornis*, the sheath is much more than half as long as the basal plate, ratio about 1.0:1.3).

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